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III. An Abstract of the Meteorological Diaries, communicated to the Royal Society, with Remarks upon them, by W. Derham, D. D. Canon of Windsor, F. R. S. [Vide PART III. in Transact. N° 433.]

PART IV. Containing Meteorological Observations made at

Naples
Bengal
Christiana

I shall begin (as in my former Abstracts) with a short and easy View of the Barometrical and Thermometrical Observations, in these little Tables of them, which will be the more valuable, on account of the Observations being made (as I suppose) with some of the Societies Glasses, of Mr. Haukesbee's Preparation.

The Barometrical Means of Naples are, both as they are fet down by the illustrious Observer

H h h 2 himself,

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himself, according to Dr. Jurin's Directions; and also as they are between the highest and lowest Stations of every Month. Those of Norway, are in the latter Way.

# A TABLE of the Barometrical Ranges at Naples, and at Christiana in Norway, in the Year 1727.

	JANUAR.	FEB.	FEB.   MAR.		MAY.	June.	
	Naples	Naples	Naples	Naples	Naples	Naples	Norw.
High		29.88				29.72	29.3
Mean	29.55 29.65	29.63 29.72	29.59 29.73	29.71 29.72		29.60 29.64	
Low	29.30	29.38	29.12	129.54	129.541	29.46	29.0

#### The TABLE continued.

l J	ULY.	August.	Augusr.		
High 29. 8	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	29. 80	Norw.  29. 7  29. 5  29. 3	Naples  29. 88  29. 59 29. 72  29. 30	

	OCTOBER.	November.	DECEMBER.		
	Naples	<b>N</b> aples	Naples		
Highest Mean	29. 88	30. 06 29. 59 29. 75	29. 88 29. 59 29. 65		
Lowest	29. 12	1 29. 121	29. 301		

### A TABLE of the Thermometrical Ranges at Naples, Bengal, and Christiana, in the Year 1727.

Jan.   Feb.   March				A	APRIL   MAY		June.				
	-	- 1	Nap.	Beng	Nap.	Beng.	Nap.	Beng.	Nap.	Beng.	Christ.
			48.3	15.2	41.0	15.3	30.0	20.4	200	10.8	46
			41.0			7.9					
Low	43.0	135.0	134.5			0.6		,			
	JULY			August							
	Nap.	Beng.	Christ.	Nap.	Beng.	Christ.	Nap.	Beng.	Nap.	Nap. 1	Vap.
High	17.0	15.4		21.0		45	25.0	10.4	43.5	47.05	0.5
Mean	10.0	7.7	- 1	11.1						43.7 4	
Low	1 3.0	0.1	30	1 7.31	0.2	25	[14.5]	5.0	21.0	40.513	6.0

These Tables give an easy View of the Barometer and Thermometer in the several distant Parts of the World specified: which would have been very instructive, had they been observed throughout the Year, as they were at Naples.

By the Barometrical Observations it appears, that the Ascent and Descent of the Quicksilver is not so great at Naples as in the more Northerly Climes: For it was but twice in the whole Year, above 30 Inches; and but thrice as low as 29.12 And so in Philos. Transact. No 321. I observed, that, at Zurich the Range is but about an Inch; but at Upminster I find the highest Ascent to have been 30.44 Inches; and the lowest Descent 27.44 Inches, which is a Range of 21 Inches: And by my Account of the Petersburgh Obfervations in 1724, it appears that the Mercurial Range there is 3.31 Inches, in Philof. Transact. No 424. p. 107. And as for Norway, the Observations are too few, and all made only in the Summer Months, whereby no good Judgment could be made: And Bengal had no Barometer.

By the Thermometrical Table we may judge of the Heat and Cold of the feveral Places. For the right understanding of which, I must repeat what I said in a former Abridgment, viz. That in Mr. Haukesbee's Thermometers, the Point of Extream Heat is 5 Degrees above 0; that 45 Degrees below 0, is the Point of Temperate; and 65 Degrees, the Point of Freezing. But Dr. Cyril (vide Phil. Transatt. No 429. p. 336.) saith it freezes with them at Naples when the Spirits are only got to 55 Degrees. His Words deserve Consideration: Illud vessimm prespicacia, & investigandarum naturalium rerum studio dignum reputo, quâ de re siat, ut apud

apud nos Aqua congelescat, Thermometri liquore vix ad gr. 55 depresso, quum Londini id non accidat nisi ad gr. 65, quo loco vestrum Frost est notatum. Si quid valet Philosophari, ad Aque in Gelu concretionem, præter intensum Frigoris gradum, aliquid aliud requiritur, quo in nostris, non in vestris regionibus Aer ditatus est. Quemadmodum ut Aqua in Glaciem arte mutetur, haud nix sola, sed sale mista admovenda.

And as at Naples it Freezes at a warmer Degree of the Thermometer; so I observe that at Christiana the illustrious Observer complains of the vehement Heat of the Sun, Æsius Solis vehemens, in July, when the Spirits were but at 36 Degrees and 34 Degrees; in August at 25, 27, and 28 Degrees, he says, the Weather was exceeding hot, Cælum calidissimum. I thus distinctly mention (as the Author doth) the Heat of the Sun, and the Heat of the Weather, because they may not mean the same Thing, I having been informed by the Whale-Fishers, that in Greenland the Heat of the Sun is scarce tolerable on one Side of the Ship, when on the other Side it Freezes hard.

At Bengal the Heat at some times seems to be very intense, by the Thermometer being, in some Months, more Degrees about the 0, than the Point of Extreme Heat is. As particularly in April, May and June, it was 6, 7, and 8 Degrees above 0. But those excessive Heats are generally in the Afternoons, the Forenoons being more temperate, and the Temperature, or what they call Cold there, is at the same Time of the Day. And the Degree of the Thermometer, at which they reckon it coldish, is about

about 15 Degrees. And on May 2d, at 8 o' Clock in the Morning, Mr. Beilamy faith (the Glassesing then at 20.4 Degrees) The Morning was like

Winter Weather in Europe.

Whether this so different Judgment of great Cold at Bengal, when the Thermometer was about 20 Degrees; and of excessive Heat at Christiana, when it was but a little below that, viz. at 25 Degrees, &c. Whether, I say, this difference of Judgment arises from some Prejudice of the Senses, or from some extraordinary Quality in the Air, I leave (as Dr. Cyril doth) to the Judgment of the learned Society.

As to the Weather, Winds, Rain, &c. of the feveral Places, it would be endless to meddle with Particulars, and therefore a transient View of every

Month must suffice.

At Naples, January was a cool Month, frequent Rain, with much Thunder and Storms of Wind. The Rain amounted to 111½ Measures (23 of which make an English Inch in Depth) which is 4 Inches 19½ Measures, or near 5 Inches Depth. Vesuvius was pretty quiet.

February was a drier Month, the Rain amounting only to 14 Measures, which is but little above half an Inch deep. The Weather was for the most part Cloudy, with some Frosts. Vesuvius emitted

a thick Smoak.

At Naples, in March it was cold, with Hail, and Snow on the Mountains, the Rain amounted to 101 Measures, which makes 4 Inches, 9 Measures depth. The Winds were in all the Points. Vesuvius discharged Rivulets of Fire.

At Bengal the five last Days (which were all obferved in this Month) were Fair, the Wind S2-

In April the Winds at Naples were much in the northerly Points, cold, frequent Thunder, the Rain only 38 Measures, which make I Inch, 15 Measures. No Fire in Vesuvius the Beginning of the Month, but towards the latter End, divers Rivers of Fire and Smoak.

At Bengal the Wind was much among the foutherly Points, Cloudy, some Rain and Thunder. The Weather for the most part temperate, but great Heats in the Asternoons.

In May, at Naples, the Wind lay much in the westerly and southerly Points. Rain 103½ Meafures, which makes 4 Inches 11½ Measures Depth, with frequent Thunder. Vesuvius cast out Rivets of Fire, which reached almost to the Bottom of the Mountain.

At Bengal the Winds varying, but for the most part southerly, with much Cloudy, Rain, and Thunder. The Beginning of the Month colder than ordinary; afterwards exceeding hot.

In June, at Naples, the Wind was much in the westerly and north-westerly Points, but little Rain, only  $6\frac{1}{2}$  Measures, which is but about a quarter of an Inch depth.

At Bengal, much Rain with Thunder and Heat. On June 6th, it is noted, we are now pretty certain the Rains are set in.

At Christiana, the Observations begin on June 22d. The Weather temperate, and for the most part cloudy, with Thunder, Hail and Rain.

July, at Naples, was a very hot, dry Month, without any Rain, but frequent Mists. Vesuvius quiet.

At Bengal frequent and much Rain, with Thunder and Lightening; for the most part cloudy.

Winds perpetually varying.

At Christiana, great Rains with Thunder, frequent Fogs, some Fair, and Complaints of vehement Heat, although the Thermometer was but at

30 Degrees in that Month.

In August, at Naples, the Wind was in the westerly and north-westerly Points. Showers with Thunder were frequent, which amounted only to 49½ Measures, which is but a little above 2 Inches depth. And although, by the Table, the Weather seems to have been warm, yet there are frequent Complaints of the Air being cold. Vesuvius cast forth a large River of Fire.

At Bengal much Rain, with Thunder and Cloudy. Winds varying, but pretty much Easterly. Weather sometimes very hot, but for the most Part more Temperate than in some of the other Months.

At Christiana the Winds various; frequent Mists, with Cloudy, and sometimes Fair, and sometimes Rain. Great Complaints of Heat, although by the

Thermometer no great Signs of it.

In September, at Naples, the Winds various, and very stormy towards the latter End of the Month, with horrible Thunder, Lightening, and heavy Rain, which amounted to 220½ Measures, making 9 Inches 13½ Measures in depth; which was more than fell in any Month of this Year, and drowned the Marshes, and did a great deal of Damage to

I i i Houses.

Houses, Trees, &c. Vesuvius was quiet at the Be-

ginning, but fiery at the End.

Bengal, hath only the 7 first Days Observations where the Wind was mostly Easterly, Cloudy, and Showery, with Thunder and Lightening.

The Observations of the remaining Months are

all of Naples; where, in

October, the Wind was various, and sometimes stormy, with Thunder; frequent Mists, and sometimes heavy Rain, amounting to 107 Measures, which make 4 Inches 15 Measures, and in the Mountains Snow. Vesuvius turbulent in the Beginning of the Month, and emitted a River of Fire.

November was, for the most Part, a cloudy misling Month, with Thunder and Rain; but of no greater Quantity than 73 Measures, which are equal to 3 Inches 4 Measures depth English. The Wind was more Northerly than in any other Quarter. The Fire of Vesuvius less.

December was a wet, unseasonable Month, the Rain being 179 Measures, which is 7 Inches 18 Measures in depth; which following the Rains and unseasonable Weather of the preceeding Months, so damaged the Fruits of the Earth, that publick Prayers were ordered for fair Weather.

The Rain of the whole Year the illustrious Obferver computes at 3 English Feet 7 Inches and 142 Measures. And to shew how much wetter this Year was than the others, he gives these Quantities of the Year 1724, 2 English Feet 10 Inches, 14 Measures; of 1725, 2 Feet 10 Inches, 17 Measures; of 1726, 1 Foot, 11 Inches, 142 Measures.